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TITLE: "Irrigation Scheduling, Freeze Warning and Soil Salinity Detecting"

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STATEMENT OF PROGRESS:

A computer program for reading forthcoming S192 digital tapes has been developed from the four seconds of S192 imagery (9 channels, date of coverage 5-30-73) that we received on 7-2-74.

Cameron County

Emphasis has been given to: (1) obtaining microdensitometer readings on S190B imagery (about 60 feet resolution) covering the test sites in Cameron County, and (2) arbitrarily delineating relative soil salinity levels for the test sites in Cameron County. The objective is to determine the influence of soil salinity levels on microdensitometer readings.

The following table shows the relative salinity levels and corresponding range of electrical conductivity readings of the saturated soil extract and mean electrical conductivity readings and their standard deviations (S.D.) in mmhos/cm for areas A to E running north to south along Paredes Road and for areas F to G running west to east along Farm Road 510. Also shown are the length of each area in miles and the number of samples that were taken within each area. Number of soil samples differed among areas because some areas contained more soil series than other areas, and soil samples were taken of each soil series. There was poor correlation between conductivity readings and particle size distribution which determines the soil type. (Soil series are composed of soil types.) Therefore, the test site was arbitrarily divided into areas of low, medium, and high salinity levels.

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Area	Length of area in miles ^{a/}	No. of samples	Electrical conductivity (ECe) in mmhos/cm		Relative salinity level
			Range	Mean±S.D.	

Paredes Road (north to south)

A	12.8	34	0.7- 8.2	1.9± 1.6	Low
B	1.6	4	11.0-27.0	20.1± 7.2	High
C	2.3	4	1.4- 2.2	1.6± 0.4	Low
D	7.0	6	6.4-22.5	13.9± 7.4	Medium
E	2.8	5	0.8- 1.7	1.3± 0.4	Low

Farm Road 510 (west to east)

F	4.1	16	0.6-12.6	3.6± 3.6	Low
G	1.8	6	10.4-65.0	40.9±19.6	High
H	3.7	4	9.0-14.2	11.8± 2.3	Medium

^{a/} Width among areas is variable because of nonuniformity in size and shape of the soil series from which samples were taken.

Starr County

It has been decided to duplicate each of the seven range sites and the four soil samples for each range site to provide more reliable data. This work is in progress.